

**RINKER SCHOOL OF CONSTRUCTION MANAGEMENT
UNIVERSITY OF FLORIDA**

CONSTRUCTION ECOLOGY & METABOLISM

COURSE NUMBER: ICM 6682

NUMBER OF CREDIT HOURS: 3

INSTRUCTOR: Charles J. Kibert (*ckibert@ufl.edu*)

COURSE OBJECTIVES

- Understand the concept of sustainable development or sustainability in the built environment.
- Learn about the different sustainability frameworks used worldwide, their strengths and weaknesses.
- Learn about the fundamental resources issues related to the built environment.
- Understand concepts such as New Urbanism, passive design strategies, technologies, ecological principles, and energy conservation measures for efficient buildings.

COURSE DESCRIPTION

This course examines the major schools of thought in present day ecology to determine what can be applied either as model or metaphor for green buildings. The new discipline of Industrial Ecology, which applies ecology to industrial operations such as manufacturing, is examined for approaches that can be applied to Ecological Design. The work of architects attempting to apply ecology in their work will be examined to determine the state of environmentally friendly buildings being created using current approaches. Throughout the course subsidiary issues of materials, energy, water, land use, and the integration of the natural and built environments will be examined.

PREREQUISITE KNOWLEDGE AND SKILLS:

Satisfactory standing as an ICM or BCN student

PURPOSE OF COURSE

This course has the objective of determining how to apply ecological theory and developments in industrial ecology to create what has often been described as Ecological Design for the built environment. Although Ecological Design or Ecologically Sustainable Design has been one of the key aspects of sustainable construction or green building, upon closer examination, contemporary approaches lack any true understanding of or incorporation of ecological principles, research, approaches, or key ideas.

COURSE LEARNING OUTCOMES:

Upon completion of the course students will demonstrate their:

- understanding of the application of the sustainable development framework to the design and construction of the built environment
- ability to apply the principles of sustainable construction to decisions regarding the built environment.
- Knowledge of life cycle costing, life cycle assessment, net zero strategies, green building assessment systems, and the environmental impacts of the built environment.

COURSE POLICIES

Class Attendance. Attendance at all class meetings is mandatory. Unexcused absences will result in a half letter grade reduction.

Late Assignments. Assignments are due to the instructor by the start of class on the due date. A 40% deduction will be imposed for assignments up to 24 hours late. Assignments more than 24 hours late will receive no credit.

Disruptive Behavior Policy. Students engaging in disruptive behavior will be asked to leave the classroom. Use of cell phones and computers without permission of the instructor is considered disruptive behavior.

Honor Policy. It is Rinker School policy that any incidence of cheating, copying, signing rosters for others, or other attempts to deceive will be penalized by course failure.

General Policies

- There will be no substitutions for assignments
- Writing assignments will be checked using Turnitin software to identify any instance of plagiarism. Any student found guilty of plagiarism will be assigned an "F" for the course. NO appeal. Please make sure you understand what this means and how to avoid it.
- ASSIGNMENTS SUBMITTED AFTER CALLED FOR WILL BE ELIGIBLE FOR HALF CREDIT.
- If you have a conflict with an papers, projects, quiz, presentations, or class assignments, arrangements must be made with the instructor BEFORE the time of the event if there are to be alternate arrangements made (see Makeup Policy above).
- The professor reserves the right to adjust the grade scale. Under no circumstances will a student's grade be lowered by this adjustment.
- For exams and in-class assignments, students are responsible for all material presented in class, all reading assignments, guest lectures, site visits, and handouts distributed in class or via the class website. Questions on exams are not limited to things written on the board, shown as an overhead or part of a slide presentation.

UF POLICIES

UNIVERSITY POLICY ON ACCOMMODATING STUDENTS WITH DISABILITIES

Students requesting accommodation for disabilities must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drc/>). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

UNIVERSITY POLICY ON ACADEMIC MISCONDUCT

Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the UF Student Honor Code at <http://www.dso.ufl.edu/students.php>. Although joint work on assignments may be acceptable in some cases, duplication of an assignment, both manually or by computer will be considered an act of academic dishonesty and dealt with accordingly. On all work submitted for credit by students at the university, the following pledge is either required or implied: **"On my honor, I have neither given nor received unauthorized aid in doing this assignment."**

GETTING HELP

For issues with technical difficulties for E-learning in Canvas, please contact the UF Help Desk at:

- Learning-support@ufl.edu
- (352) 392-HELP - select option 2
- <https://lss.at.ufl.edu/help.shtml>

GRADING POLICIES

REQUIREMENTS

Course papers (3 x 100 pts each)	300 points
Course problems (3 x 50 pts each)	150 points
Blogposts and responses	100 points
Oral presentation (1 paper)	25 points
Group Project	100 points
Oral presentation (project)	25 points
Quizzes (max 10 x 10 points each)	100 points (max)
Total Points (max)	800 points

GRADING SCALE:

Grading based on points earned as a percentage of total points. A: 95 and up, A-: 92-94 B+:88-91, B: 83-87, B-: 80-82, C+: 77-79, C: 73-76, C-: 70-72, D+: 67-69, D: 63-66, D-: 60-62, E: 59 or below.

Module 1 – Introduction

Module 2 - Defining an Ecology of Construction

Module 3 – Material Circulation, Energy Hierarchy and Building Construction

Module 4 – On Complexity Theory, Exergy, and Industrial Ecology

Module 5 – Applying Ecological Emergence to Design and Construction

Module 6 – Ecological Dynamics and Adaptive Architecture

Module 7 – Minimizing Waste Emissions From the Built Environment

Module 8 – Industrial Ecology and The Built Environment

Module 9 – Construction Ecology and Metabolism I

Module 10 – Construction Ecology and Metabolism II

Module 11 – Ecologic Analogues and Architecture

Module 12 – Semester Research Paper and Presentation

